CLAIMS:

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A free water knockout vessel comprising:

an elongate vessel for receiving oil with gas and large quantities of free water that is not entrained in the oil, and for separating a percentage of the water and gas from the oil, the vessel having a longitudinal axis,

means for supporting said vessel such that the longitudinal axis is at an oblique angle to the horizontal, whereby the vessel has an upper end and a lower end,

a lower vessel head closing the lower end, and an upper head closing the upper end,

an elongate sleeve extending substantially coaxially inside said vessel and having an upper sleeve head which closes the top of the sleeve and a lower sleeve head which closes the bottom of the sleeve, with slots located on the bottom of the sleeve in the bottom portion of the sleeve, and slots located on the top of the sleeve at an intermediate position between the ends of the vessel,

a short sleeve extending substantially coaxially inside said elongated sleeve, which is open on the bottom end, and projects through said upper elongated sleeve head,

a elongated sleeve connects to said short sleeve and projects through said top portion of the vessel, at the top point of the vessel curvature,

fluid inlet means for admitting fluids to the elongate sleeve adjacent the upper sleeve end,

gas separator means for removing gas from fluid in the elongate sleeve,

oil outlet means adjacent the lower vessel head for removing water from the vessel.

2. The free water knockout in claim 1, in which the gas separator means is connected to substantially the short sleeve.

3. The free water knockout in claim 1, in which said oil outlet means is connected to substantially the highest location within the vessel, or the oil outlet can be placed at any orientation on the vessel by the use of a riser conduit.

4. The free water knockout in claim 1, in which the water outlet is connected to substantially the lowest location within the vessel, or the water outlet can be placed at any orientation on the vessel by the use of a downcomer conduit.

5. The free water knockout in claim 1, in which the elongated sleeve and vessel are substantially cylindrical and coaxial, all said heads being substantially hemispherical.

6. The free water knockout in claim 1, has a plurality of apertures adjacent its intermediate position and lower end.

7. The free water knockout in claim 1, orientates the inlet elongated sleeve such that it creates a cyclone, which forces the in coming fluid to move tangentially to the wall of the elongated sleeve and create centrifugal forces which help reduces the forces holding the water, oil and gas components together.

8. The free water knockout in claim 1, uses a short sleeve to intersect in to the center of the cyclone created by spinning the incoming fluids, and remove the gas component from the incoming fluid.

9. The free water knockout in claim 1, can be equipped with heat tubes that protrude through the lower head of the vessel, the lower head of the elongated sleeve, and run parallel to the longitudinal axis of the elongated sleeve.

10. The free water knockout in claim 1, can be equipped with fired tubes that protrude through the upper head of the vessel, the fired tube enters the vessel through the upper head and travels horizontal into the vessel to the desired penetration, it then turns 180 degrees and exits out the upper head of the vessel.

11. A method of removing free water from oil well production fluids, utilizing an elongate vessel, having a longitudinal axis, a means for supporting said vessel such that the axis is at an oblique angle to the horizontal, whereby the vessel has an upper end and a lower end, a lower vessel head closing the lower end, and an upper head closing the upper end, an elongate sleeve extending substantially coaxially inside said vessel and having an upper sleeve head which closes the top of the sleeve and a lower sleeve head which closes the bottom of the sleeve, with slots located on the bottom of the sleeve in the bottom portion of the sleeve, and slots located on the top of the sleeve at an intermediate position between the ends of the vessel, a short sleeve extending substantially coaxially inside said elongate sleeve, which is open on the bottom end, and projects through said upper sleeve head, a conduit connects to said short sleeve and projects through said top portion of the vessel, at the top curvature of the vessel, fluid inlet means for admitting fluids to the elongate sleeve adjacent the upper sleeve end, gas separator means for removing gas from fluid in the elongate sleeve, and oil outlet means adjacent the lower vessel head for removing water from the vessel; said method comprising simultaneously:

a) admitting oil well production fluids through the fluid inlet means,

b) allowing oil emulsion to be removed through said oil emulsion outlet means,

c) allowing water to be removed through said water outlet means, and

d) allowing gas to be removed from the elongated sleeve by the short sleeve means.